THE NIGERIAN JOURNAL OF SOCIOLOGY AND ANTHROPOLOGY

ISSN: 0331-4111
E-ISSN: 2736-075X
Volume 23, No. 2 (November, 2025)

DOI: 10.36108/NJSA/5202.32.0290

Procurement and Economic Sustainability of Food and Beverages Manufacturing Firms in Calabar, Cross Rivers State

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Abstract
The study examined the Procurement and economic sustainability of food and beverage manufacturing firms in Calabar, Cross Rivers State. The specific objectives were to: examine the relationship between Sourcing Strategy and Cost Efficiency and ascertain the relationship between Supplier Selection and delivery time of food and beverage manufacturing firms in Calabar, Cross Rivers State. The study used the descriptive survey design approach. The primary source of data was the administration of questionnaire. A total population of 1100 staff was used. The adequate sample size of 284, using Freund and William's statistic formula at 5 percent margin of error was used. 244staff returned the questionnaire and accurately filled. Data was presented and analyzed using Likert Scale and the hypotheses was tested using Z – test. The findings indicated Sourcing Strategy had significant positive the relationship with Cost Efficiency, Z(8.707, P. < .05) and Supplier Selection had significant positive the relationship with delivery time of food and beverage manufacturing firms in Calabar, Cross Rivers State, Z(11.203, P. < .05). The study concluded that Sourcing Strategy and supplier selection had significant positive the relationship with Cost Efficiency and delivery time of food and beverage manufacturing firms in Calabar, Cross Rivers State. The recommended among others that Food & Beverage Industry should Combine local and global sourcing to balance cost, quality, and agility.

Keywords: Food and beverage manufacturing firms, procurement, Sourcing strategy, Economic sustainability of Cross River State

Introduction

Procurement plays a pivotal role in aligning the food and beverage industry's operations with the principles of economic sustainability. This alignment is increasingly vital in the face of global challenges such as climate change,

resource scarcity, and shifting consumer expectations. The integration of sustainable procurement practices not only addresses environmental and social concerns but also enhances economic resilience and competitiveness within the industry. Central to sustainable procurement is the adoption of frameworks that guide organizations toward responsible sourcing and operational efficiency. The ISO 20400:2017 standard provides comprehensive guidance on integrating sustainability into procurement processes, emphasizing the importance of considering environmental, social, and economic impacts throughout the supply chain (ISO, 2017). By adhering to such standards, food and beverage companies can systematically evaluate and improve their procurement strategies to support long-term economic sustainability.

Technological advancements have further facilitated the transition toward sustainable procurement. The implementation of digital procurement platforms enables organizations to enhance transparency, streamline operations, and make data-driven decisions. These platforms support the monitoring of sustainability metrics and foster collaboration among stakeholders, thereby reinforcing sustainable practices across the supply chain (Stütz *et al.,* 2023). In the Nigerian context, sustainable sourcing has demonstrated a significant impact on service quality within the beverage industry. A study focusing on the 7up Bottling Company revealed that sustainable sourcing practices positively influence customer satisfaction and operational efficiency. The findings underscore the economic benefits of integrating environmental and social considerations into procurement decisions, highlighting the role of sustainable practices in enhancing service delivery and customer trust (Moses *et al*., 2024). Despite its importance, numerous food and beverage companies encounter ongoing difficulties in aligning procurement functions with economic sustainability objectives. Common challenges include ineffective supplier selection, lack of process transparency, limited technological integration, and an overemphasis on short-term cost reduction. Furthermore, weak enforcement of procurement policies and low awareness of sustainable procurement frameworks often result in disjointed efforts that fall short of delivering tangible improvements

The study investigates the relationship between procurement practices and economic sustainability in food and beverage manufacturing firms located in Calabar, Cross River State. The specific objectives were to: Assess the relationship between sourcing strategy and cost efficiency and determine the relationship between supplier selection and delivery time in food and beverage manufacturing firms in Calabar, Cross River State.

Theoretical Framework

The study is grounded in the following theoretical frameworks: Resource-Based View (RBV) Theory – Jay Barney (1991) and Stakeholder Theory – R. Edward Freeman (1984). The Resource-Based View (RBV) theory is the foundational theory for this study, as it provides the most appropriate lens for understanding how strategic procurement functions as an internal capability

that enhances long-term economic sustainability. This perspective emphasizes the potential for food and beverage firms to secure competitive advantages by leveraging procurement as a strategic resource.

Resource-Based View (RBV) Theory Developed by Jay Barney in 1991, the RBV theory posits that an organization's competitive advantage stems from its effective management of valuable, rare, inimitable, and non-substitutable internal resources. Within the context of procurement, this theory suggests that sourcing strategies, supplier relationships, and procurement systems are strategic assets that can significantly contribute to sustainable economic performance.

Stakeholder Theory Originally proposed by R. Edward Freeman in 1984, the Stakeholder Theory emphasizes the need for businesses to consider the interests and expectations of all stakeholders ranging from customers and suppliers to broader society when making decisions. Applied to procurement, this theory supports the adoption of ethical sourcing, transparency, and socially responsible practices that align with the values and concerns of diverse stakeholder groups.

Materials and Methods

The study focused on four selected food and beverage manufacturing firms in Calabar, Cross Rivers State: Royal Bakery, EWA Pharm. Agric & Chemicals, Gokas Nigeria Enterprises, and Ewaco Nig Ltd. These firms were chosen based on their large workforce and capital base exceeding 10 million naira. Employing a descriptive survey design, data was primarily collected through questionnaires distributed to a total population of 1,100 staff, with a sample size of 284 determined using Freund and William's formula at a 5% margin of error. Out of these, 244 questionnaires were accurately completed, yielding an 83% response rate. The instrument's validity was confirmed through content analysis, and reliability tested via Pearson correlation coefficient, which resulted in a strong reliability coefficient of 0.832. Data analysis involved mean scores and standard deviations using the Sprint Likert Scale, while hypotheses were tested using the Z-test statistic.

Results

The section examines the relationship between procurement practices and economic sustainability in food and beverage manufacturing firms located in Calabar, Cross River State. The section was designed with two tables: Table 1 Relationship between Sourcing Strategy and Cost Efficiency and table 2 relationship between Supplier Selection and delivery time**,** respectively, for the quantitative data. Additionally, the qualitative data was presented in thematic form. The quantitative data collected significantly shows that strategic sourcing allows firms to build long-term relationships with reliable suppliers, often leading to bulk purchasing discounts of 49.6%. By leveraging economies of scale, firms reduce the cost per unit of raw materials, thus enhancing cost efficiency with 54.1%. Lean sourcing contributes to cost efficiency by aligning

procurement closely with production schedules and minimizing waste 49.6%. and Firms that integrate information systems (like ERP or SCM software) with suppliers can coordinate delivery schedules better and reduce miscommunication or delays with 60.2%.

Table 1: Responses on the Relationship between Sourcing Strategy and Cost Efficiency of food and beverage manufacturing firms in Calabar, Cross Rivers State

		5 SA	4 A	3 N	2 DA	1 SD	∑F X	- X	SD	Decision
1	Strategic sourcing allows firms to build long-term relationships with reliable suppliers, often leading to bulk purchasing discounts.	605 121 49.6	212 53 21.7	69 23 9.4	62 31 12.7	16 16 6.6	964 244 100.0	3.95	1.301	Agree
2	By leveraging economies of scale, firms reduce the cost per unit of raw materials, thus enhancing cost efficiency.	660 132 54.1	200 50 20.5	30 10 4.1	38 19 8.7	33 33 13.5	961 244 100.0	3.94	1.454	Agree
3	Lean sourcing contributes to cost efficiency by aligning procurement closely with production schedules and minimizing waste.	605 121 49.6	200 50 20.4	60 20 8.2	42 21 8.6	32 32 13.1	939 244 100.0	3.85	1.445	Agree
4	Digital sourcing platforms can reduce procurement costs through process optimization and better supplier selection.	620 124 50.8	240 60 24.6	24 8 3.3	52 26 10.7	26 26 10.7	962 244 100.0	3.94	1.390	Agree
5	Close supplier relationships enhance flexibility, reduce lead times, and improve responsiveness, which are crucial for cost control in perishable goods industries.	680 136 55.7	224 56 23.0	12 4 1.6	64 32 13.1	16 16 6.6	996 244 100.0	4.08	1.300	Agree
	Total Grand mean and standard deviation							**3.952**	**1.378**	

Source: Field Survey, 2025

Table 1 shows that 174 out of 244 respondents, or 71.3%, agreed that strategic sourcing enables firms to establish long-term partnerships with dependable suppliers, often resulting in bulk purchase discounts, with a mean score of 3.95 and a standard deviation of 1.301. Additionally, 182 respondents (74.6%) agreed that by utilizing economies of scale, companies can lower the unit cost of raw materials, thereby improving cost efficiency, reflected by a mean score of 3.94 and standard deviation of 1.454. Furthermore, 171 respondents (70.0%) agreed that lean sourcing enhances cost efficiency by closely aligning procurement with production schedules and reducing waste, with a mean score of 3.85 and standard deviation of 1.445. Meanwhile, 184 respondents (75.4%) agreed that digital sourcing platforms help cut procurement costs through process optimization and better supplier selection, with a mean score of 3.94

and standard deviation of 1.390. Lastly, 192 respondents (78.7%) agreed that strong supplier relationships improve flexibility, shorten lead times, and boost responsiveness, which are essential for cost control in industries dealing with perishable goods, with a mean score of 4.08 and standard deviation of 1.300.

Table 2: Responses on the relationship between Supplier Selection and delivery time of food and beverage manufacturing firms in Calabar, Cross Rivers State

		5 SA	4 A	3 N	2 DA	1 SD	∑F X	- X	SD	Decision
1	Choosing reliable suppliers ensures consistent and on-time delivery of raw materials, which is essential to avoid delays in production.	585 117 48.0	256 64 27.2	6 2 .8	74 37 15.3	24 24 9.8	945 244 100.0	3.87	1.404	Agree
2	Unreliable suppliers can cause stockouts or require emergency procurement, which increases costs and disrupts production	630 126 51.6	388 97 39.8	6 2 .8	14 7 2.9	12 12 4.9	1050 244 100.0	4.30	.997	Agree
3	Firms that integrate information systems (like ERP or SCM software) with suppliers can coordinate delivery schedules better and reduce miscommunication or delays	735 147 60.2	356 89 36.5	6 2 .8	10 5 2.0	1 1 .4	1108 244 100.0	4.54	.662	Agree
4	Building long-term, collaborative relationships with key suppliers improves communication, trust, and flexibility	645 129 52.9	372 93 38.1	6 2 .8	8 4 1.6	16 16 6.6	1047 244 100.0	4.29	1.055	Agree
5	Suppliers closer to the manufacturing site typically provide shorter delivery times	545 109 44.7	416 104 42.6	6 2 .8	28 14 5.7	15 15 6.1	1010 244 100.0	4.14	1.106	Agree
	Total Grand mean and standard deviation							**4.228**	**1.0448**	

Source: Field Survey, 2025

Table 2 reveals that 75.2% of respondents (181 out of 244) agreed that selecting reliable suppliers is crucial for ensuring consistent and timely delivery of raw materials, preventing production delays, with a mean score of 3.87 and standard deviation of 1.404. A higher percentage, 91.4% (223 respondents), agreed that unreliable suppliers lead to stockouts or emergency procurement, increasing costs and disrupting production, reflected by a mean score of 4.30 and standard deviation of 0.997. Most respondents, 96.7% (236), agreed that integrating information systems such as ERP or SCM software with suppliers improves coordination of delivery schedules, reducing miscommunication and delays, with a mean score of 4.54 and standard deviation of 0.662. Additionally, 91.0% (222 respondents) agreed that long-

term collaborative relationships with key suppliers enhance communication, trust, and flexibility, with a mean score of 4.29 and standard deviation of 1.055. Lastly, 87.3% (213 respondents) agreed that suppliers located closer to the manufacturing site typically ensure shorter delivery times, supported by a mean score of 4.14 and standard deviation of 1.106.

Test of Hypotheses

Hypotheses One: Sourcing Strategy has relationship with the Cost Efficiency of food and beverage manufacturing firms in Calabar, Cross Rivers State

One-Sample Kolmogorov-Smirnov Test

		Strategic sourcing allows firms to build long-term relationships with reliable suppliers, often leading to bulk purchasing discounts	By leveraging economies of scale, firms reduce the cost per unit of raw materials, thus enhancing cost efficiency	Lean sourcing contributes to cost efficiency by aligning procurement closely with production schedules and minimizing waste	Digital sourcing platforms can reduce procurement costs through process optimization and better supplier selection	Close supplier relationships enhance flexibility, reduce lead times, and improve responsiveness, which are crucial for cost control in perishable goods industries
N		244	244	244	244	244
Uniform Parameters[a,b]	Minimum	1	1	1	1	1
	Maximum	5	5	5	5	5
Most Extreme Differences	Absolute	.496	.541	.496	.508	.557
	Positive	.066	.135	.131	.107	.066
	Negative	-.496	-.541	-.496	-.508	-.557
Kolmogorov-Smirnov Z		7.746	8.450	7.746	7.938	8.707
Asymp. Sig. (2-tailed)		.000	.000	.000	.000	.000

a. Test distribution is Uniform
b. Calculated from data

Decision Rule

If the calculated Z-value is greater than the critical Z-value (i.e$Z_{cal} > Z_{critical}$), reject the null hypothesis and accept the alternative hypothesis accordingly.

With Kolmogorov-Smirnon Z – value ranges from 7.746<8.707and on Asymp. Significance of 0.000, the responses from the respondents as display in the table is normally distributed. This affirms the assertion of the most of the respondents that Sourcing Strategy had significant positive relationship with the Cost Efficiency of food and beverage manufacturing firms in Calabar, Cross Rivers State.

Furthermore, comparing the calculated Z- value ranges from 7.746<8.707against the critical Z- value of 0.000 (2-tailed test at 95 percent level of confidence) the null hypothesis were rejected. Thus, the alternative hypothesis was accepted which states that Sourcing Strategy had significant positive relationship with the Cost Efficiency of food and beverage manufacturing firms in Calabar, Cross Rivers State.

Hypotheses Two: Supplier Selection has relationship with delivery time of food and beverage manufacturing firms in Calabar, Cross Rivers State

One-Sample Kolmogorov-Smirnov Test

		Choosing reliable suppliers ensures consistent and on-time delivery of raw materials, which is essential to avoid delays in production	Unreliable suppliers can cause stockouts or require emergency procurement, which increases costs and disrupts production	Firms that integrate information systems (like ERP or SCM software) with suppliers can coordinate delivery schedules better and reduce miscommunication or delays	Building long-term, collaborative relationships with key suppliers improves communication, trust, and flexibility	Suppliers closer to the manufacturing site typically provide shorter delivery times
N		244	244	244	244	244
Uniform Parameters[a,b]	Minimum	1	1	1	1	1
	Maximum	5	5	5	5	5
Most Extreme Differences	Absolute	.492	.664	.717	.660	.623
	Positive	.098	.049	.004	.066	.061
	Negative	-.492	-.664	-.717	-.660	-.623
Kolmogorov-Smirnov Z		7.682	10.371	11.203	10.307	9.731
Asymp. Sig. (2-tailed)		.000	.000	.000	.000	.000

a. Test distribution is Uniform.
b. Calculated from data.

Decision Rule

If the calculated Z-value is greater than the critical Z-value (i.eZ_{cal}>$Z_{critical}$), reject the null hypothesis and accept the alternative hypothesis accordingly.

With Kolmogorov-Smirnon Z – value ranges from 7.682<11.203and on Asymp. Significance of 0.000, the responses from the respondents as display in the table is normally distributed. This affirms the assertion of the most of the respondents that Supplier Selection had significant positive relationship with delivery time of food and beverage manufacturing firms in Calabar, Cross Rivers State.

Furthermore, comparing the calculated Z- value ranges from 7.682<11.203 against the critical Z- value of 0.000 (2-tailed test at 95 percent level of confidence) the null hypothesis was rejected. Thus, the alternative hypothesis was accepted which states that **Supplier Selection had significant positive relationship with delivery time of food and beverage manufacturing firms in Calabar, Cross Rivers State.**

Discussions of Findings

The result of hypothesis one showed that the calculated Z-value (7.746 to 8.707) was significantly greater than the critical Z-value of 0.000, indicating a strong positive relationship between Sourcing Strategy and Cost Efficiency in food and beverage manufacturing firms in Calabar, Cross Rivers State. This finding aligns with existing literature, such as Patil and Chavan (2017), who found that strategic sourcing factors like the number of suppliers, frequency of communication, and supplier selection criteria positively impact supply chain efficiency and responsiveness. Similarly, Yasmin (2024) demonstrated that strategic sourcing in Bangladeshi manufacturing firms leads to significant cost reductions through better procurement practices, supplier management, negotiation, and risk mitigation strategies.

Regarding hypothesis two, the calculated Z-value ranged from 7.682 to 11.203, also exceeding the critical Z-value of 0.000, confirming a significant positive relationship between Supplier Selection and delivery time in the same firms. Supporting this, Stević (2017) highlighted that traditional supplier evaluation criteria—quality, price, and delivery—remain crucial in supplier selection. Ferreira and Silva (2023) further emphasized that the top criteria for supplier selection in SMEs include quality of goods, adherence to delivery times, cost, supplier reputation, geographical location, and performance history. Their study underscores the importance of strategic purchasing in helping companies achieve long-term objectives by integrating supplier selection into their overall strategic planning.

Conclusion

The study concluded that Sourcing Strategy and supplier selection had significant positive the relationship with Cost Efficiency and delivery time of food and beverage manufacturing firms in Calabar, Cross Rivers State. Procurement plays a critical role in ensuring the economic sustainability of food and beverages manufacturing firms. Efficient procurement involves the strategic sourcing of raw materials, managing supplier relationships, controlling costs, and ensuring the timely delivery of quality inputs. For manufacturing firms in the food and beverage sector, procurement decisions directly influence production efficiency, product quality, and profitability. Economic sustainability in this context refers to a firm's ability to operate profitably over the long term while managing resources efficiently, minimizing waste, and adapting to market changes.

Recommendations

1. Food & Beverage Industry should combine local and global sourcing to balance cost, quality, and agility, Local sourcing ensures fresher ingredients, reduces logistics costs, and supports regional economies and Global sourcing allows access to unique ingredients and cost advantages from international suppliers.

2. Food and beverage manufacturing firms should prioritize selecting suppliers with proven delivery reliability and shorter lead times during the supplier selection process. By evaluating potential suppliers based on their past delivery performance, responsiveness, and logistical capacity**,** firms can strengthen their supply chain efficiency and improve overall delivery time.

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